

reside between the observer of the display and the display. Therefore, the references have no relevance at all, although there is explicitly mentioned a diffraction grating in U.S. reference document, but as relating to spatial filtering.

Watanabe does not describe how to produce backlighting by a diffractive structure, as for example in col. 6, lines 37-39, he reference says that the diffraction grating (5) is in front of the display, see also cols. 15 and 16 and Fig. 27. In such a position the grating is used as spatial filter as indicated also in col. 2, lines 47-50. Therefore, the purpose of the structure (5) has actually nothing to do with backlighting of a display by means of diffraction. The word "diffraction grating" seems to be mentioned there preferably to indicate some measures of the structure for scaling purposes of the spatial filter to define the spatial frequency. However, while a diffraction grating diffracts light, but in the reference the diffraction grating is structurally different and has a different purpose. Also, using language relating diffraction gratings, such a periodic structure is easily described in mathematical way. However, a solid grating structure as in the Watanabe reference is very different than in the invention, while in the embodiments of the invention, the period of the grating-like structure, as described in the application, depends on the location from the light source. Such dependent period relates to the out-coupling efficiency of the light pipe in the embodiments of the invention, whereas in the reference the period seems to be constant.

JP 61-35585 seems to relate to a diffraction grating manufacturing techniques as in the figure in the JP reference says, but there is no indication of the pixel geometry nor the

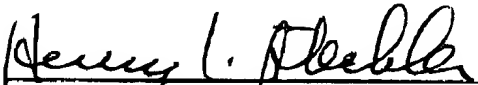
orientation as claimed in the invention. The invention in Applicants' application describes a certain diffractive backlighting means, a light pipe, and the structure thereof as described in the claims and the application text. Since the claims already are formulated for backlight and/or the orientation of the pixels are different in the embodiments of the invention than in the reference, it is felt that no further limitations are needed. There are in the JP-61-35585 some periodic structure mentioned, but the pixelizing as in the invention it does not describe. Figure 2 seems to represent only a cross-section, but no pixel structure at all. The US-patent may describe a diffraction grating, but a different one for a different purpose.

Added claim 29 is supported by Fig. 3C. This feature (uniform light output with distance) is totally missing from the references. Even the previously applied references do not show this feature in combination with diffractive properties.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested, or at least an entry for appeal purposes since the claims are in better condition for an appeal. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Please charge account #16-1350 in the amount of \$1,258.00 for a 3 month extension of time, additional claim fee, and a Notice of Appeal Fee. The Commissioner is hereby authorized to charge payment for any fee deficiencies associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



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Dec 13, 2002
Date

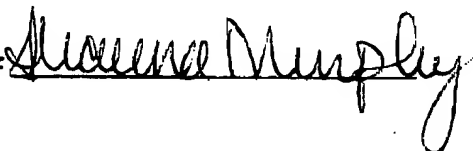
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Application No.: 09/473,765

Marked Up Claim(s)

1. (Thrice Amended) A light pipe for providing backlighting of a flat-panel display by means of at least one light source comprising:

a first surface, said surface including patterns having diffractive properties for coupling light out from the light pipe, said patterns comprising uniform, mutually different areas distributed on said first surface;

wherein the light pipe further comprise first pixel-like formations having a first orientation and second pixel-like formations having a second orientation being different than that of the first pixel-like formations orientation, residing close to the light input end of the light pipe, said pixel-like formations being arranged to diffract the light for producing uniform lighting.

23. (Amended) A light pipe for providing backlighting of a flat-panel display by means of at least one light source, comprising:

a first surface said surface including two dimensional patterns having diffractive properties for coupling light out from the light pipe, said patterns comprising uniform, mutually different areas distributed on said first surface.

25. (Amended) A light pipe for providing backlighting of a flat-panel display by means of at least one light source, comprising:

a first surface, said surface including pixel patterns having diffractive properties for coupling light out from the light pipe, said patterns comprising uniform, mutually different areas distributed on said first surface.

27. (Amended) A light pipe for providing backlighting of a flat-panel display by means of at least one light source, comprising:

a first surface, said surface including patterns having diffractive properties for coupling light out from the light pipe, said patterns comprising uniform, mutually different areas distributed on said first surface including close to said light source.

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